

APPLICATION REPORT



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Schenck Process enabling an alternative iron making process

Posco the world's 5th largest steel manufacturer based in South Korea is developing and using an alternative iron making process called FINEX. This innovative iron making process has used Schenck Process equipment since its inception for the pneumatic conveying and injection of raw materials into the process.



Schenck Process clam and ball valves controlling gasifier lock hoppers

Installations that have been completed by Schenck Process for Posco include a fine ore pneumatic conveying system that uses dense phase injection delivering to the reactor at up to 440tph against a 10 barg back pressure with a lift of over 60m at an accuracy of $\pm 2\%$ in real time using a Schenck Process RotoScrew solution.

After the reactors Schenck Process provide the lock hopper system for charging direct reduced iron to the gasifier, Schenck Process clam and ball valve were developed for this application and are water cooled to operate at 750°C, and 10 barg pressure diameter of 650 mm.

Long distance, 1500m, pulverised coal delivery at 60t/h across site from the coal mill to the injection storage bins are also provided by Schenck Process. This uses a Schenck Process RotoFeed stream phase solution.

Onward injection of pulverised coal direct to the tuyeres around the gasifier is delivered at 60tph from two Schenck Process RotoFeed's each delivering to 20 tuyeres with up to 14 barg back pressure using Schenck Process static splitting technology.

Schenck Process standard pneumatic pumps are used to convey granular coal to the briquetting plant at rates of 150tph over 100 m.

Schenck Process solutions were already widely utilised worldwide by other clients in traditional blast furnace iron making but the systems required for the FINEX process required substantial increases in operating temperatures, pressures and distances. These projects demonstrate the significant technical experience and expertise of Schenck Process in providing effective solution for new and challenging applications. The use of RotoFeed, RotoScrew and valve technologies are central to the ability of Schenck Process to respond to the significant and new technical issues that the FINEX process presented.

Schenck Process worked closely with the Posco team to develop these specific solutions demonstrating the confidence that the client has with Schenck Process and the close working relationship that has developed between them over a long period of time. Both partners have worked together to bring a state of the art solution to the problem of handling in a new and potentially difficult process and has provided an innovative system with low implementation and running costs.



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